

REMARKS

Claims 21-27, 29, 30 and 32-48 are now pending in this application. Claims 11-20, 28 and 31 have been canceled and new claims 47 and 48 have been added by this amendment. Each of the pending claims is believed to define an invention which is novel and unobvious over the cited references. Favorable reconsideration of this case is respectfully requested.

A copy of all claims as filed with a corrected numbering sequence is submitted herewith on separate sheets as requested by the Examiner.

Additionally, a substitute specification is also submitted herewith under 35 CFR 1.125(a) as required by the Examiner. An amendment referencing the parent application in the first line of the specification was made in the application transmittal form. Consequently, the substitute specification only includes previously submitted changes and no marked up copy of the specification is required.

Claims 21, 27, 33, 34, 40 and 46 have been amended to correct minor informalities noted by the Examiner. Claim 11 has been canceled.

Claims 39 and 40 have been rejected under 35 U.S.C. 112, second paragraph as being indefinite. Claims 39 and 40 have been amended to change their dependency. In view of this amendment, it is respectfully submitted that all pending claims are now in all aspects in compliance with 35 U.S.C. 112, second paragraph. Therefore the withdrawal of this rejection is respectfully requested.

Claims 11-13 and 16-18 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Number 5,726,610 to Allen. Claims 11-13 and 16-18 have been canceled, rendering this prior art rejection moot.

Claims 21-25, 28, 31, 34-38, 41 and 44 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Number 6,057,744 to Ikada.

Independent claims 21 and 34 have been amended to recite that a frequency adjusting circuit is coupled between the antenna terminal and the transmitting SAW filter or the receiving SAW filter, wherein the frequency adjusting circuit has a capacitance element. Ikada does not disclose this feature recited in the amended claims.

Ikada describes a surface acoustic wave device which is arranged to define a filter having two or more pass bands, column 1, lines 6-10. As shown in Figure 3, the surface acoustic wave device has a first SAW filter and a second SAW filter 23. The SAW filters are connected at their respective output sides at a connection point 24, column 4, lines 40-51. An inductive device for impedance matching 28 is connected between the connection point 24 and ground, column 6, lines 47-52. As such, there is no disclosure in Ikada of the frequency adjusting circuit with a capacitance element as recited in amended independent claims 21 and 34, and claims depending therefrom. Therefore, the withdrawal of this rejection is respectfully requested.

Claims 14, 15, 19 and 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. in view of U.S. Patent Number 4,910,481 to Sasaki et al. Claims 14, 15, 19 and 20 have been canceled, rendering this prior art rejection moot.

Claims 21, 22, 25-27, 34, 35 and 38-40 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 5,786,738 to Ikata et al. in view of Allen et al.

As discussed above independent claims 21 and 34 have been amended to recite a frequency adjusting circuit coupled between the antenna terminal and the transmitting SAW filter or the receiving SAW filter. Neither Ikata et al. or Allen et al. teach or suggest this feature.

Ikata et al. describe a circuit including two filter chips 33A and 33B connected to a common terminal pattern 37C, connected to the antenna terminal 36C via phase matching circuits 37A and 37 B see Figure 3 and column 5, lines 37-49. There is no teaching or suggestion in Ikata et al. of a frequency adjusting circuit coupled to the antenna terminal and having a capacitance element as is recited in amended claims 21 and 34.

Allen et al. does not supplement Ikata et al. to teach or suggest the frequency adjusting circuit as recited in the present claims. Allen et al. illustrates in Figure 1 a receive SAW filter 18 and a transmit SAW filter 42 formed on a common substrate. An antenna 12 is coupled by line 14 to a filter 16. The filter 16, in turn, is coupled to the SAW filter 18 and the SAW filter 42. However, there is no teaching or suggestion in Allen et al. of a frequency adjusting circuit having a capacitance element and being coupled between the antenna terminal and the transmitting SAW filter or the receiving SAW filter as is recited in the present claims.

By providing a frequency adjusting circuit as recited in the amended claims, the occurrence of impedance mismatching between an antenna and a duplexer is easily avoided. Moreover, this structure can prevent the reduction of insertion loss relating to the duplexer at the transmitting or receiving pass band. Accordingly, the present invention can easily avoid the intensity deterioration of the transmitting or receiving signal.

In view of the above discussion, it is clear that the cited references do not teach or suggest the features recited in the amended claims. Therefore, the withdrawal of this rejection is respectfully requested.

Claims 29, 30, 32, 34, 42, 43, 45, and 46 have been rejected under 35 U.S.C. 103(a) as being unpatentable of Ikada in view of Ikata et al.

As discussed above, neither Ikada nor Ikata et al. describes any frequency adjusting circuit coupled between an antenna terminal and a transmitting SAW filter or a receiving SAW filter, wherein the adjusting circuit has a capacitance element, as is recited in the rejected claims. Consequently, as neither references mentions the claimed frequency adjusting circuit, a combination of these references still lacks the teaching or suggestion of the above-mentioned feature of the present invention. Consequently, the combination of Ikada and Ikata et al. does not teach or suggest the invention recited in the present claims. Therefore, the withdrawal of this rejection is respectfully requested.

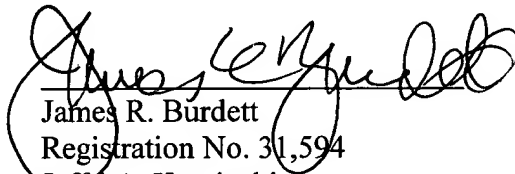
If the Examiner is of the opinion that the prosecution of this application would be advanced by a personal interview, the Examiner is invited to telephone undersigned counsel to arrange for such an interview.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

The Commissioner is authorized to charge any fee necessitated by this Amendment to our Deposit Account No. 22-0261.

Respectfully submitted,

February 20, 2003
Date


James R. Burdett
Registration No. 31,594
Jeffri A. Kaminski
Registration No. 42,709
VENABLE
P.O. Box 34385
Washington, D.C. 20043-9998
Telephone: (202) 962-4800
Facsimile : (202) 962-8300

/lrh
DC2/432487

VERSION SHOWING CHANGES MADE

IN THE CLAIMS:

Please cancel claims 11-20, 28 and 31 without prejudice or disclaimer.

Please amend the claims as follows:

Sub D2
C1

21. (Amended) A surface acoustic wave duplexer having an antennal terminal, a transmitting terminal and a receiving terminal, comprising:

a transmitting SAW filter coupled between the antenna terminal and the transmitting terminal;

a receiving SAW filter coupled between the antenna terminal and the receiving terminal:

a common piezoelectric substrate on which both of the transmitting SAW filter and the receiving SAW filter are formed; and

a package covering the common piezoelectric substrate, wherein the antenna terminal, the transmitting terminal and the receiving terminal are formed on the package; and

a frequency adjusting circuit being coupled between the antenna terminal and the transmitting SAW filter or the receiving SAW filter, wherein the frequency adjusting circuit has a capacitance element.

22. (Amended) A surface acoustic wave duplexer according to claim 21, further comprising:

Sub
C1 D2 }
a branching filter circuit coupled between ~~the antenna terminal~~ the frequency
adjusting circuit and the transmitting SAW filter or the receiving SAW filter.

Sub
C2 D2 }
27. (Amended) A surface acoustic wave duplexer according to claim 25,
wherein the package has a first layer substrate and a second layer substrate, the first layer
substrate is disposed on the second layer substrate, and the branching filter circuit is
formed on the first layer substrate or the second layer substrate.

Sub
C3 D2 }
29. (Amended) A surface acoustic wave duplexer according to claim ~~28~~ 1,
wherein the frequency adjusting circuit has an inductance element and a capacitance
element.

30. (Amended) A surface acoustic wave duplexer according to claim ~~28~~ 27,
wherein the frequency adjusting circuit is formed on the common piezoelectric substrate
together with the branching filter circuit.

Sub
C4 D2 }
32. (Amended) A surface acoustic wave duplexer according to claim ~~31~~ 1,
wherein the frequency adjusting circuit is formed on the package.

33. (Amended) A surface acoustic wave duplexer according to claim ~~31~~ 21,
wherein the package has a first layer substrate and a second layer substrate, the first layer

Sub
D2
substrate is disposed on the second layer substrate and the frequency adjusting circuit is formed on the first layer substrate or the second layer substrate.

34. (Amended) A surface acoustic wave duplexer having an antenna terminal, a transmitting terminal and a receiving terminal, comprising:

Amended
C4
a SAW filter chip including a transmitting SAW filter connected with the transmitting terminal and a receiving SAW filter connected with the receiving terminal, wherein both the transmitting SAW filter and the receiving SAW filter are formed on one common piezoelectric substrate;

a package covering the one common piezoelectric substrate, wherein the antenna terminal, the ~~transmittal~~ transmitting terminal and the receiving terminal are formed on the package; and

a frequency adjusting circuit being coupled between the antenna terminal and the transmitting SAW filter or the receiving SAW filter, wherein the frequency adjusting circuit has a capacitance element.

35. (Amended) A surface acoustic wave duplexer according to claim 34, further comprising:

a branching filter circuit being coupled between ~~the antenna terminal~~ the frequency adjusting circuit and the transmitting SAW filter or the receiving SAW filter.

Sub D2
C15
39. (Amended) A surface acoustic wave duplexer according to claim ~~38~~ 35, wherein the branching filter circuit is formed on the package.

40. (Amended) A surface acoustic wave duplexer according to claim ~~38~~ 35, wherein the package has a first layer substrate and a second layer substrate, the first layer substrate being disposed on the second layer substrate, and the branching filter circuit is formed on the first layer substrate or the second layer substrate.

Sub D2
C16
42. (Amended) A surface acoustic wave duplexer according to claim ~~41~~ 34, wherein the frequency adjusting circuit has an inductance element ~~and a capacitance~~ element.

43. (Amended) A surface acoustic wave duplexer according to claim ~~41~~ 34, wherein the frequency adjusting circuit is formed on the common piezoelectric substrate ~~with the branching filter circuit~~.

44. (Amended) A surface acoustic wave duplexer according to claim ~~41~~ 21, wherein the package has a multi-layer structure.

45. (Amended) A surface acoustic wave duplexer according to claim ~~44~~ 34, wherein the frequency adjusting circuit is formed on the package.

Sub D2
C4
46. (Amended) A surface acoustic wave duplexer according to claim 44 34, wherein the package has a first layer substrate and a second layer substrate, the first layer substrate being disposed on the second layer substrate, and the frequency adjusting circuit is formed on the first layer substrate or the second layer substrate.

Please add the following new claims:

Sub D2
C7
47. (New) A surface acoustic wave duplexer according to claim 21, wherein capacitance element is coupled in series between the antenna terminal and the transmitting SAW filter or the receiving SAW filter.

48. (New) A surface acoustic wave duplexer according to claim 34, wherein the capacitance element is coupled in series between the antenna terminal and the transmitting SAW filter or the receiving SAW filter.

IN THE ABSTRACT:

Please delete the original Abstract and replace it with the revised Abstract of the Disclosure submitted.

U.S. Appln. No. 09/785,501